activation of water makes maintainence of proper disinfectant residuals (0.4 ppm of free chlorine) difficult in whirlpools. Eradication of Pseudomonas, an organism adapted to water and capable of growth at 42°C, is a special problem. High water temperature and hydration may alter the skin; that is, dilate pores and promote infection with Pseudomonas. Skin manifestations of Pseudomonas infection include pruritic papulovesicular or vesiculopustural rash which develops 8 to 48 hours after exposure, and usually resolves over a period of seven to ten days without specific treatment. In addition, sore throat, sore eyes, fever, malaise, nausea, vomiting and otitis externa have occurred following exposure to Pseudomonas infected water.

Swimmer's ear or diffuse otitis externa may be caused by Pseudomonas, Staphylococcus, Escherichia coli and Enterobacter aerogenes. Therapy usually consists of administering local otic preparations containing antibiotics, such as colistin or neomycin. Recurrent swimmer's ear may be treated prophylactically with a solution such as 2 percent acetic acid in glycerin base instilled in the canal after swimming.

Epidemic adenovirus conjunctivitis and pharyngo-conjunctival fever have resulted from swimming pool contamination. Most outbreaks have been related to inadequate chlorination. The incubation period is five to nine days, and fever, pharyngitis and conjunctivitis are characteristic. Adenovirus infection is usually self-limited.

Mycobacterium marinum is the etiologic agent of swimming pool granuloma or chronic granuloma of the skin. The skin lesion usually results from trauma to the skin (often forgotten) in a swimming pool or while cleaning a fish tank. A small, red, nontender papule that may drain pus intermittently results. The lesions may resolve spontaneously or may require chemotherapy, such as with minocycline hydrochloride, or surgical excision.

If you suspect that a patient has acquired disease from a communal pool, contact your local health department so that an epidemiologic investigation and sanitation inspection can be undertaken.

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Screening Methods for Tuberculosis Control

THE COURT PHYSICIAN in China approximately 2,000 years ago is reputed to have advised the emperor that "to administer medicines to diseases which have already developed . . . is comparable to the behavior of those persons who begin to dig a well after they have become thirsty, and of those who begin to cast weapons after they have engaged in battle." Would not these actions be too late?

Similarly, the Center for Disease Control in recent years has changed the thinking in regards to the status of tuberculosis control. First, they state that 80 percent of future active cases will come from the pool of persons who were infected with mycobacterium tuberculosis years ago and in whom the bacilli remain dormant. The other 20 percent will be contacts of recently identified infectious cases. Before 1976 most cases nationwide were found in persons 45 years old and older. The incidence of tuberculosis among older persons continued to increase nationally, but in California more new cases are seen now in persons younger than 45.

Program objectives in any tuberculosis control program are as follows: (1) infectious persons must become noninfectious, (2) noninfectious persons (who are infected with tubercle bacilli) must remain noninfectious and (3) persons not infected must remain not infected. In order to achieve these objectives, the classification of tuberculosis was changed in 1974. The following is the currently accepted classification:

0. No tuberculosis exposure, not infected (no history of exposure, negative tuberculin skin test).

I. Tuberculosis exposure, no evidence of infection (history of exposure, negative tuberculin skin test).

II. Tuberculous infection, without disease (positive tuberculin skin test, negative bacteriological studies [if done], no x-ray findings compatible with tuberculosis, no symptoms due to tuberculosis).

III. Tuberculosis: infected, with disease.

Classifications I and II are where the current emphasis of control programs is now directed. The intimate contacts of a classification I patient, especially infants and children, are advised to be placed for a minimum of three months on an appropriate isoniazid course of chemotherapy

after contact with the case is broken. If they are still a classification I at that time, therapy may be discontinued. It is recommended that all classification II patients 35 years of age and under be given an appropriate course of isoniazid chemotherapy.

Screening for tuberculosis today is best accomplished by use of the Mantoux intradermal tuberculin skin test (5 TU of purified protein derivative S in Tween 80 media). A test result read 48 to 72 hours later of 10 mm or greater induration is judged to be positive. In close household contacts to an index case, greater than 5 mm induration may be considered positive for starting isoniazid chemotherapy. A history of BCG (bacille Calmette Guérin) immunization may confuse the interpretation of the skin test results. However, standard procedure is to consider a purified protein derivative reaction of 10 mm or more as indicative of true infection. All cases in which a skin test is positive should be followed up with x-ray evaluation of the patients' chest status.

A person considered to be a tuberculin converter is one in whom there has been a positive skin test of less than 10 mm induration within the last two years, in whom on retesting there was an increased induration of 6 mm or greater, and in whom a test result now is 10 mm or greater in induration. In such persons an appropriate course of chemotherapy is advised.

Tuberculosis control must continue to be a priority in certain areas of the country. Geographically, the distribution of cases is uneven. In California, the tuberculosis case rate continues to be higher than the national rate (15.8 per 100,000 population compared with 13.9 per 100,000 population). A total of 3,465 new active cases were reported in California in 1977 (compared with 30,145 cases nationally). These cases were concentrated in the large metropolitan areas of the state and agricultural regions of the Central Valley. Data on ethnic distribution of cases support the observation that the increase in cases is due largely to the influx of immigrants from Latin America, Asia and Oceania. Children nationally account for 5.5 percent of reported cases, compared with 8.5 percent in California.

Tuberculosis continues to be a costly major public health problem. Therefore, alertness to the disease by private practitioners, early diagnosis, timely initiation of therapy, prompt reporting and effective follow-up of contacts continues to warrant increased attention and effort.

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